University. It may be interesting to record the results of the computations so far obtained, viz.:—

61^1 Cygni .	0″·4289	±0″·0180	α Cassiopeiæ .	0″·072	±0″·042*
61^2 Cygni .	0·4353	±0·0152	β Cassiopeiæ .	0·187	±0·039*
μ Cassiopeiæ	0·0356	±0·0250	γ Cassiopeiæ	<0·05	±0·047*
Polaris . .	0·052	±0·0314			

The last result is peculiarly interesting, as it seems to furnish an instance where the resources of modern astronomy have arrived at the limits of their present possibility. The total number of plates taken for the purposes of the above investigation is approximately 700, and each plate has been measured with 120 bisections of the necessary stars, amounting altogether to about eighty-four thousand observations. Independently and concurrently with the preceding work Dr. Pritchard undertook for the Photographic Committee of the Royal Society the examination of two silver on glass mirrors of the same aperture but of very different focal lengths, with the view of ascertaining the practical effects of focal length on the photographic field. This work, owing to the temporary character of the mounting and the imperfection of the mechanical movement of the telescope, has been attended with great labour and personal endurance on the part of the observer, but at length it was brought to a successful conclusion, and the results have been communicated to and printed by the Royal Society. The expenses of the instrumental appliances connected with this investigation have been defrayed partly from a grant from the Royal Society, and partly by the generosity of Dr. De La Rue, to whom this Observatory owes so much, not only in the matter of pecuniary aid, but by his kindly encouragement and appreciation of our labours. The general result of the investigation alluded to above is the comparative unsuitability of any mirror for an extensive charting of the heavens, and particularly as regards mirrors of short focal length; but at the same time it leaves no doubt as to their capacity for the singularly accurate delineation of small portions of the heavens, and for such operations as those connected with stellar parallax, or the charting of the moon. Preparations were made for the necessary observations of the lunar eclipse of January 28 of this year; but, as was the unfortunate case with this and many other Observatories, they were rendered ineffectual by a clouded sky.

The above astronomical operations made under Dr. Pritchard's direction were skilfully and sedulously carried out by the two Observatory assistants, Mr. Plummer and Mr. Jenkins.

NOTES.

WE learn that Dr. Guppy left England for Batavia on the 30th ult. with the intention of spending some time in the examination of the living and upraised coral reefs of the Indian Archipelago. Mr. John Murray has provided the necessary funds for the first six months of his sojourn in that region, and has directed Dr. Guppy in the first place to make as complete an examination as he can of the geological structure of Christmas Island. Judging from the important notes and collections made by Captain Aldrich and Mr. Lister during the recent visit of H.M.S. *Egeria*, this island would seem to be one of the oldest of the upraised coral islands, and as such it is likely to prove of considerable geological interest. At the last meeting of the Geographical Society, Captain Wharton, the Hydrographer, read a short paper on this subject.

APPARENTLY we have missed our chance of solving the many interesting problems relating to the Antarctic regions. The matter has now been taken in hand by Germany, and we may be sure that she will not fail to carry out the enterprise in an energetic and thoroughly scientific spirit. The expedition is being organized by Dr. Neumayer, of the Hamburg Observatory.

MR. JESSE COLLINGS is to be congratulated on the result of his efforts to secure for the parish of West Lavington, Wiltshire, the full benefit of the Dauntsey Charity, a part of which the Charity Commissioners proposed to use for the establishment of a High School in some other place in Wiltshire. It is now proposed—with the approval of the Mercers' Company, the principal trustees and patrons of the Charity, who have agreed to undertake a liability of £60,000—not only that the children of the poorer inhabitants of West Lavington shall be provided with an ordinary elementary education, but that a fully-equipped Lower School for technical training in horticulture and agriculture shall be created for their benefit. It is intended that the latter school shall be adapted to the needs of persons who cannot afford to attend such institutions as those at Cirencester and Downton. If the scheme is carried out, land will be provided for the more thorough instruction of pupils, and classes will be formed for the teaching of the various sciences and arts which especially relate to agriculture.

ON July 16, Prof. W. E. Ayrton will begin, at the City and Guilds of London Institute, a course of six lectures (to be delivered on Mondays, Wednesdays, and Fridays) on the construction, testing, and use of electrical measuring instruments. This course will include experimental lectures and special laboratory work. The lectures will comprise the principles and practice of the construction, calibration, and testing for faults of ammeters, voltmeters, ohmmeters, wattmeters, coulombmeters, and ergmeters as used for direct and alternating current systems. The students' practical work will be conducted in a laboratory specially fitted with accumulators, standard instruments, &c., for electrical instrument testing; and they will have the opportunity of examining and practically trying all the more important electrical meters at present in ordinary use.

AN interesting Exhibition of hygiene and life-saving apparatus has been opened in the Park Léopold at Ostend. The exhibits are divided into the following sections:—Applications of geological, meteorological, and medical science to hygiene, industrial hygiene, maritime hygiene, domestic hygiene, hygiene of infancy, publications relating to hygiene, and life-saving apparatus.

AT Messrs. Stevens' Sale Rooms on Monday, the 25th ult., a specimen of *Papilio caunus* from Assam was sold for £10. Mr. William Watkin, of Croydon, was the purchaser.

AT the meeting of the Scientific Committee of the Royal Horticultural Society on June 26, Prof. Church contributed a summary of his highly interesting and important researches upon the presence of aluminium in the ashes of plants. This substance, instead of being peculiar to the species of Lycopodium, as once supposed, is found in minute traces in the ashes of very many others, a circumstance not to be wondered at, considering the abundant distribution of the element in many soils. It occurs in all the species of Lycopodium examined, except those which are of epiphytic habit, and which, consequently, do not directly derive their food from the soil. It does not occur in the allied genus Selaginella. It occurs in the ashes of some tree ferns in large proportions, sometimes forming as much as 20 per cent. of the ash, as in *Alsophila australis*, *Cyathea medullaris*; while from others it is all but absent. In the British species of ferns little or no alumina has been found.

AT the same meeting Mr. McLachlan called attention to the notion that cold winters are injurious to insects—a notion he stated to be erroneous, although, no doubt, severe alternations of cold, heat, drought, or moisture, were prejudicial to insect life. During the present season it was noticed generally that great destruction of foliage occurred from caterpillars which destroyed the succulent portions of the leaf and tied the framework and fragments together by a web of fine threads comparable with spiders' webs. These caterpillars were different in different cases. In the oak they were species of Tortrix; in the apple the winter moth was destructive; while in other cases the larva of the Ermine moth was exceedingly hurtful to leaves.

THE *American Meteorological Journal*, desiring to attract the attention of students to tornadoes, in hopes that valuable results may be obtained, offers the following prizes:—For the best original essay on tornadoes or description of a tornado, 200 dollars will be given; for the second best, 50 dollars. Among those worthy of special mention 50 dollars will be divided. The essays must be sent to either of the editors, Prof. Harrington, Astronomical Observatory, Ann Arbor, Michigan, or A. Lawrence Rotch, Blue Hill Meteorological Observatory, Readville, Mass., U.S.A., before the first day of July, 1889. They must be signed by a *nom de plume*, and be accompanied by a sealed envelope addressed with the same *nom de plume* and inclosing the real name and address of the author. Three independent and capable judges will be selected to award the prizes; and the papers receiving them will be the property of the journal offering the prizes. A circular giving fuller details can be obtained by application to Prof. Harrington.

THE United States Congress has been discussing the question whether the Weather Bureau should be transferred to the proposed new Department of Agriculture. *Science* advocates the maintenance of the existing system. "The observations," it says, "upon which the Weather Bureau bases its calculations are now all made by enlisted men of the army, who have been specially instructed and trained for the work. No political influence whatever has been allowed to operate for their appointment, promotion, or retention in the service. It has been the aim of the Chief of the Signal Office to send to all important stations men who will be acceptable to the communities in which they are to live and do their work, but no member of Congress has been able to secure the transfer or removal of an observer sergeant in order that some favourite might be put in his place. The security which the observer sergeants have felt for the terms of their enlistment has certainly had a beneficial effect upon the character of the service they have rendered. It may seem an anomaly to the people that a duty that is in no respect of a military character should be done by soldiers rather than by civilians, but the military organization of the Weather Bureau has certainly resulted in keeping political influence from dictating in regard to the *personnel* of a class of men whose appointment and promotion it was very desirable to keep free from this influence."

THE Report of the Director of the Hong Kong Observatory for 1887 shows that the meteorological inquiries are being pushed on with vigour, and that the amount of information collected respecting the typhoons of the past year has been much greater than in previous years. Some of these results have been published in an appendix on the "Results of Further Researches concerning Typhoons"; and another work on the subject, with maps exhibiting the paths of the typhoons, is in preparation. This investigation will throw light on the cause of the frequency of these storms in the China Sea in September, and will enable masters of vessels to escape damage from them, and to make quicker voyages.

WE have received from Dr. Hellmann a very comprehensive and careful discussion of the rainfall of the Iberian Peninsula, being an excerpt paper from the Berlin *Zeitschrift der Gesellschaft für Erdkunde*, vol. xxiii. The principal results of the investigation were communicated to the Berlin Meteorological Society in January last (see NATURE, vol. xxxvii. p. 312). Dr. Hellmann, to whom we are indebted for many laborious inquiries, took advantage of his stay in Andalusia, in 1875–76, to collect all available materials, but found them insufficient for trustworthy results; the present discussion has therefore been delayed until the observations of ten more years could be added. The work deals with the monthly and yearly values for sixty-seven stations, for which a sufficiently long series could be got, and contains a map showing the yearly distribution of rainfall. The yearly and daily periods of rainfall, the monthly and yearly extremes, and the frequency, are also all fully and ably discussed. The annual fall is very various, being no less than 138 inches on the Serra da Estrella, and as little as 11 inches at Lérida, in Catalonia. In the yearly period the minimum fall at all stations occurs in July and August, and the maximum, generally speaking, about May or October, according to locality. Snow falls only in a few of the more elevated districts.

THE vapour-density of sulphur has been re-determined by Dr. Biltz in the laboratory of Prof. Victor Meyer, with unexpected results. It has hitherto been generally accepted that at a temperature (524° C.) not very far removed from its boiling-point (447° C.) the molecule of sulphur is built up of six atoms. This assumption is based upon vapour-density determinations by Dumas and Mitscherlich, who obtained values about this temperature pointing to a hexatomic molecule. However, the work of the last few years upon the chlorides of aluminium, tin, and iron, has opened the eyes of chemists to the fact that the double formulæ Al_2Cl_6, Sn_2Cl_4, and Fe_2Cl_6, resting as they did upon a few experiments performed within a very limited range of temperature, are erroneous, and have no foundation in fact. The older work upon the constitution of sulphur molecules was notably of this class. The experiments themselves were irreproachable, and completed with all the skill for which the experimenters were famous; but unfortunately the temperatures at which they worked were not sufficiently removed from each other, there being only a difference of 27° C. between their maxima and minima. It is now, moreover, a demonstrated law that the existence of molecules of fixed composition can only be assumed when the vapour-density remains constant within a notable interval of temperature. Hence a series of fresh determinations have been undertaken in the case of sulphur. Experiments conducted at 518° in a bath of vaporized pentasulphide of phosphorus by Dumas's method gave values averaging about 7·0, which are nearly coincident with Dumas's own. At the higher temperature of 606°, using a bath of stannous chloride vapour, the density had diminished to 4·7. At 860°, as is well known, sulphur vapour attains the normal constitution of two atoms to the molecule, and the density remains constant for about 200° higher still. Hence, in order to finally set the question at rest, a series of ten determinations were made at intervals of about 10°–15° from 468° to 606°, with the conclusive result that the density regularly diminished from 7·9 at the former to 4·7 at the latter temperature. Hence the notion of S_6 is completely dissipated; there is no more experimental reason for it than there is for the existence of molecules of the constitution S_5 or S_n. None but the value corresponding to the normal composition, S_2, stands the test of interval of temperature, therefore we must conclude that sulphur obeys the usual law, and that its molecules when completely vaporized are each composed of two atoms.

Science says that the logs from the great raft abandoned off the coast of New England a few months ago have drifted in a direction about east by south, and that the greater part of them are now in the region between the 33rd and 38th parallels and the 30th and 50th meridians. The reports lately received at the Hydrographic Office would seem to show that the general drift of the logs has been about east by south, and that most of them are now west-south-west from the Azores. Very few, if any, have drifted north of the 40th parallel. A great deal of timber has been reported further north, to the westward of the 20th meridian, but, from the descriptions given, it does not seem to be a part of the great raft.

In the twenty-first Annual Report of the Provost to the Trustees of the Peabody Institute, Baltimore, it is stated that whereas the number of readers during the past year declined, the number of books used increased. Thus the library "is being gradually converted into that real reference library for scholars which its founder intended to establish." A table included in the Report gives some interesting and suggestive information as to the subjects studied. Antiquities, philology, and theology seem to be the most popular subjects. On the first of these subjects 2894 volumes were read; on the second, 2336; on the third, 2212. Biography comes next; but there were readers for only 1,964 volumes under this heading.

The Register, for 1887-88, of the Johns Hopkins University of Baltimore has been sent to us. In an introductory statement it is explained that this University was opened in 1876; that thus far the Faculty of Philosophy has alone been fully organized; and that the formation of a Medical Faculty has been begun, and will soon receive further development. In the Faculty of Philosophy, instruction is carried on by University methods and by Collegiate methods corresponding with the requirements of students at different stages of their advancement. University instruction is offered to those who have already taken an academic degree, or who have otherwise fitted themselves to pursue advanced courses of study.

From the Report, just issued, of the trustees of the South African Museum for the year ended December 31, 1887, we learn that the condition of the collection generally has been satisfactorily maintained by dint of regular and frequent inspection. The donations during the year numbered 3125 specimens, presented by 78 donors, as compared with 1298 specimens, presented by 58 donors, in 1886. The trustees make an urgent appeal for the extension of the Museum buildings. "Each year," they point out, "has of necessity increased the over-crowding of the very limited available space, and this has now become a most serious hindrance to the usefulness of the Museum, and indeed an absolute barrier to its due development. The trustees have been disappointed to find that their repeated written representations on this important matter failed to meet with the favourable consideration of the Government, as they have thus been placed in the highly unsatisfactory position of inability to promote the normal growth of the institution, or even to insure the proper preservation of much of the valuable public property for which they are trustees."

The annual reports of the Aëronautical Society of Great Britain for the years 1885-86 have been issued in one small volume. Among the contents are the following papers, read at the annual meeting of the Society on December 11, 1886:—Gravity and wind-pressure on auxiliary powers in flight, by Sidney Hollands; balloon-signalling in war, by Eric Bruce; experimental ballooning, by F. W. Breary; an aërial boat, by Mr. Green; and jet-propulsion for aëronautical purposes, by Captain Griffiths.

We have received No. 5 of the first volume, fourth series, of the Memoirs and Proceedings of the Manchester Literary and Philosophical Society. It contains the following memoirs:—Descriptions of twenty-three new species of Hymenoptera, by P. Cameron; a survey of the genus Cypræa (Linn.), its nomenclature, geographical distribution, and distinctive affinities, with descriptions of two new species and several varieties (with two plates), by James Cosmo Melvill; a catalogue of the species and varieties of Cypræa, arranged on a new circular system, in accordance with true sequence of affinity, by James Cosmo Melvill; memoir of the late Prof. Balfour Stewart, F.R.S., by Prof. A. Schuster, F.R.S. To the last of these memoirs a list of the titles of papers by Prof. Balfour Stewart is appended.

A sixth edition of Mr. William Ford Stanley's "Mathematical Drawing and Measuring Instruments" (E. and F. N. Spon) has just been issued. It contains descriptions of twenty-five new instruments mounted or brought out since the publication of the fifth edition ten years ago. Among the instruments invented by the author himself is the oograph, designed for the purpose of enabling oologists to draw eggs of birds in their natural sizes and proportions.

A useful little volume on "Landscape Photography," by Mr. H. P. Robinson, has been issued as one of the series of "Photographic Handy-Books" (Piper and Carter). It consists of letters written to a friend "whose study of photography enabled him to produce a technically perfect negative, but who did not know how to put his knowledge to pictorial use." "They were not intended," the author explains, "to point out a royal road to art, but rather to act as a stimulus to activity in the search for subjects for the camera, and to teach how readiness of resource may help good fortune in turning them into agreeable pictures."

An interesting pamphlet on Pallas's sand grouse, by Mr. W. B. Tegetmeier, has just been issued (Horace Cox). It is illustrated with a coloured plate and woodcuts. "It is greatly to be regretted," says the author, "that a bird so beautiful in its form, harmless in its habits, valuable as an article of food, interesting to the sportsman as a game bird, and to the naturalist as the type of a most singular genus, should not be protected. The present pamphlet has been compiled as an endeavour to make the bird better known, to interest the public at large in the species, and thus, if possible, to aid in its preservation and naturalization as a British game bird."

Science states that Mr. William Walter Phelps has introduced into Congress a Bill to purchase from Stephen Vail, of Morristown, N J., the original telegraphic instrument, or recording receiver, invented by his father, Alfred Vail, and used upon the first telegraphic line ever constructed,—that between Washington and Baltimore,—and to transmit the first message ever sent: "What hath God wrought?" The purchase of this instrument is strongly recommended by the officers of the Smithsonian Institution. The price is ten thousand dollars.

According to an official notification of the Trustees of the Schwestern Fröhlich Stiftung at Vienna, certain donations and pensions will be granted from the funds of this charity this year, in accordance with the will of the testator, Miss Anna Fröhlich, to deserving persons of talent who have distinguished themselves in any of the branches of science, art, or literature, and who may be in want of pecuniary support, either through accident, illness, or infirmity consequent upon old age. The grant of such temporary or permanent assistance in the form of donations or pensions is, according to the terms of the foundation deed, primarily intended for natives of the Austrian Empire, but foreigners of every nationality—English and others—may likewise participate, provided they are resident in Austria. Information as to the terms and conditions of the foundation deeds, &c., may be obtained from the Austro-Hungarian Embassy in London.

The additions to the Zoological Society's Gardens during the past week include two Tasmanian Wolves (*Thylacinus cynocephalus*), two Bennett's Wallabys (*Halmaturus bennetti*), a Black and Yellow Cyclodus (*Cyclodus nigro-luteus*) from Tasmania, nine Silky Bower Birds (*Philonorhynchus violaceus*) from New South Wales, ten Laughing Kingfishers (*Dacelo gigantea*), ten Blue-cheeked Parrakeets (*Platycercus cyanogenys*), two Cereopsis Geese (*Cereopsis novæ-hollandiæ*), seven Maned Geese *Bernicla jubata*), two Black-backed Piping Crows (*Gymnorhina tibicen*), two Lace Monitors (*Varanus varius*), two Gould's Monitors (*Varanus gouldi*), a Gaimard's Rat Kangaroo (*Hypsiprymnus gaimardi*) from Australia, deposited; a Smooth

Snake (*Coronella lævis*), European, presented by Mr. Walter C. Blaker; a Dark-Green Snake (*Zamenis atrovirens*) from Dalmatia, an Æsculapian Snake (*Coluber æsculapii*), European, purchased; two Triangular-spotted Pigeons (*Columba guinea*), bred in the Gardens.

OUR ASTRONOMICAL COLUMN.

AMERICAN OBSERVATORIES.—The Trustees of the Lick bequest formally made over the Lick Observatory to the University of California on June 1. The staff of the Observatory consists of Prof. Holden, Director; Messrs. Barnard, Burnham, Keeler, and Schaeberle, astronomers; and Mr. Chas. B. Hill, librarian and assistant-astronomer.

The Lick Observatory is not to be the most elevated of American Observatories. Mr. H. B. Chamberlin, of Denver, Colorado, is providing the University of that city with a new equatorial refractor of 20 inches aperture. The site chosen for the erection of this telescope is 5000 feet above sea-level, some 800 feet higher than the Lick Observatory.

Mr. W. R. Brooks, so well known for his cometary discoveries, has removed to the Observatory provided for him by the generosity of Mr. William Smith, of Geneva, New York. His present address is therefore "Smith Observatory, Geneva, N.Y."

The instruments of the Dearborn Observatory, Chicago, have been dismounted, and the old site abandoned, and a new building is to be erected at Evanston, about 16 miles north and 3 miles west of the old site, and some 250 feet from the shore of Lake Michigan, on grounds belonging to the North-Western University, with which institution the Observatory is in future to be connected, but without affecting its relationship to the Chicago Astronomical Society. The new building, which is to cost about £5000, and which will include a dome and tower for the 18½-inch refractor, a transit-room, library, and about eight other rooms, is the gift of Mr. James Hobbs.

Rochester, New York, has no fewer than seven Observatories, of which the Warner Observatory is the most important.

MINOR PLANETS.—The object discovered by M. Borelly on May 12 has proved to be Sironia, No. 116; the difference between the observed and predicted places being due to the omission of perturbations in the computation of the ephemeris. Herr Palisa's discovery of May 16 thus remains No. 278 as given in NATURE, vol. xxxviii. p. 89, at first. No. 272 has been named Antonia; No. 274 Philagoria.

THE RINGS OF SATURN.—Dom M. Lamey, Director of the Observatory of the Priory of St. John, Grignon, claims to have discovered four new rings around Saturn, outside those previously known. The first of these rings is said to commence at the extreme edge of that now known as the outer ring; the next reaches to the orbit of Enceladus; the third, which is the brightest, touches the orbit of Tethys; whilst the fourth and faintest lies between Dione and Rhea.

The distances from Saturn of the known rings have been measured by M. Perrotin, at Nice, with the following results:—

	Outer limit.	Cassinian division.	Dark ring. Outer limit.	Dark ring. Inner limit.
	″	″	″	″
E. Ansa ...	11·22 ...	8·50 ...	4·08 ...	1·46
W. Ansa ...	11·12 ...	8·43 ...	4·07 ...	1·41

with an average probable error for each determination of ± 0″·02. These results agree well with those of Profs. O. Struve and Meyer, except in the case of those in the last column. The distances in the E. ansa appeared almost always greater than those in the W. ansa for the two outer points measured, but the measures of the dark ring are sometimes greater on one side, sometimes on the other. This is probably due to the revolution of the perisaturnium of the dark ring, which would appear to revolve round the planet in an elliptic orbit. The dark line known as Encke's division has not been seen in 1888, though seen in previous years; but on the other hand the inner part of the ring B has shown three faint divisions separating it into three nearly equal parts. The dark ring has appeared of a uniform tint, and no division has been detected in it.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1888 JULY 8–14.

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on July 8

Sun rises, 3h. 56m.; souths, 12h. 4m. 51·1s.; sets, 20h. 14m.: right asc. on meridian, 7h. 12·3m.; decl. 22° 25′ N. Sidereal Time at Sunset, 15h. 23m.

Moon (New on July 9, 6h.) rises, 3h. 16m.; souths, 11h. 25m.; sets, 19h. 36m.: right asc. on meridian, 6h. 32·5m.; decl. 21° 11′ N.

Planet.	Rises.	Souths.	Sets.	Right asc. and declination on meridian.	
	h. m.	h. m.	h. m.	h. m.	° ′
Mercury..	4 30 ...	12 7 ...	19 44 ...	7 14·7 ...	17 35 N.
Venus.....	3 46 ...	12 1 ...	20 16 ...	7 8·8 ...	23 12 N.
Mars......	13 5 ...	18 18 ...	23 31 ...	13 26·5 ...	9 58 S.
Jupiter....	16 6 ...	20 30 ...	0 54*...	15 39·0 ...	18 38 S.
Saturn....	5 42 ...	13 30 ...	21 18 ...	8 38·2 ...	19 9 N.
Uranus...	12 1 ...	17 41 ...	23 21 ...	12 49·8 ...	4 39 S.
Neptune..	1 6 ...	8 52 ...	16 38 ...	3 58·7 ...	18 51 N.

* Indicates that the setting is that of the following morning.

Comet Sawerthal.

July.	h.	Right Ascension.	Declination.
		h. m.	° ′
8 ...	0 ...	1 5·2 ...	49 22 N.
12 ...	0 ...	1 6·7 ...	50 10

July.	h.	
9 ...	5 ...	Mercury in conjunction with and 3° 34′ south of the Moon.
9 ...	5 ...	Venus in conjunction with and 1° 57′ north of the Moon.
9 ...	5 ...	Mercury in inferior conjunction with the Sun.
9 ...	6 ...	Mercury in conjunction with and 5° 32′ south of Venus.
9 ...	— ...	Partial eclipse of the Sun: not visible in Europe.
10 ...	20 ...	Saturn in conjunction with and 0° 1′ north of the Moon.
11 ...	19 ...	Venus in superior conjunction with the Sun.

Variable Stars.

Star.	R.A.	Decl.		h. m.	
	h. m.	° ′			
U Cephei	0 52·4 ...	81 16 N. ...	July 10,	21 52	*m*
Algol	3 0·9 ...	40 31 N. ...	,, 11,	0 42	*m*
U Monocerotis ...	7 25·5 ...	9 33 S. ...	,, 13,		*m*
R Crateris	10 55·1 ...	17 43 S. ...	,, 11,		*M*
δ Libræ	14 55·0 ...	8 4 S. ...	,, 13,	1 10	*m*
U Coronæ	15 13·6 ...	32 3 N. ...	,, 9,	0 1	*m*
U Ophiuchi... ...	17 10·9 ...	1 20 N. ...	,, 14,	1 18	*m*
Z Sagittarii... ...	18 14·8 ...	18 55 S. ...	,, 12,	1 0	*M*
R Scuti	18 41·5 ...	5 50 S. ...	,, 10,		*M*
S Sagittæ	19 50·9 ...	16 20 N. ...	,, 9,	1 0	*M*
X Cygni	20 39·0 ...	35 11 N. ...	,, 10,	23 0	*M*
T Vulpeculæ ...	20 46·7 ...	27 50 N. ...	,, 10,	22 0	*M*
			,, 11,	23 0	*m*
W Cygni	21 31·8 ...	44 53 N. ...	,, 8,		*m*
δ Cephei	22 25·0 ...	57 51 N. ...	,, 7,	0 0	*m*

M signifies maximum; *m* minimum.

Meteor-Showers.

	R.A.	Decl.	
Near 102 Herculis ...	271° ...	21° N. ...	Very slow.
	280 ...	14 S. ...	,,
,, π Cygni	330 ...	35 N. ...	Swift. Red streaks.
	352 ...	38 N. ...	Swift.

ELECTRICAL NOTES.

PROF. NICHOLS, of the Cornell University, has suggested the use of carbon and copper combined to form a compensated resistance standard. The resistance of metals increases with temperature, but that of carbon diminishes. The movement of copper is + 0·384, that of carbon − 0·0235 per cent. per degree Centigrade. For every ohm of carbon, 11·544 ohms of copper are needed to secure complete compensation for temperature.